COMMONWEALTH INST.
ENTOMOLOGY LIBRARY
2 8 AUG 1960
SERIAL U.S.A.69
EXU.

UNITED STATES DEPARTMENT OF AGRICULTURE
FARMERS' BULLETIN NO. 2148

APHIDS
ON LEAFY VEGETABLES

How To Control Them

1960

This publication is intended for the commercial grower of those vegetables whose leafy or flowering parts are marketed. For recommendations on the control of aphids on such crops in the home garden, see Home and Garden Bulletin 46, "Insects and Diseases of Vegetables in the Home Garden."

CONTENTS

	Page
Kinds of aphids	3
Green peach aphid	3
Cabbage aphid	4
Turnip aphid	5
Other aphids	5
Natural controls	6
Insects that kill aphids	6
Diseases	6
Weather	6
Control measures	7
Cultural practices	7
Control with insecticides	8
Precautions	14

This bulletin supersedes Farmers' Bulletin 1863, "The Turnip Aphid in the Southern States and Methods for its Control."

Washington, D.C. Issued June 1960

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - Price 10 cents

APHIDS
ON LEAFY VEGETABLES
How To Control Them

By W. J. Reid, Jr., and F. P. Cuthbert, Jr., entomologists
Entomology Research Division, Agricultural Research Service

Aphids, often called plant lice, are small, soft-bodied insects that suck juice from plants. They are present wherever crops are grown.

Aphids cause heavy losses to growers of leafy vegetables by—

- Reducing vigor and yield of plants.
- Contaminating edible parts.
- Transmitting destructive virus diseases of plants.
- Killing plants, if infestation is heavy.

Most species of aphids are about 1/16 inch long. Species differ in color.

Some individuals of most species have wings; others do not.

Male aphids are rare. Females of all species give birth to living young in the summer. When cold weather approaches, females of most species mate and lay eggs. Females live about a month, and produce 80 to 100 young.

KINDS OF APHIDS

Several species of aphids attack leafy vegetables.

GREEN PEACH APHID

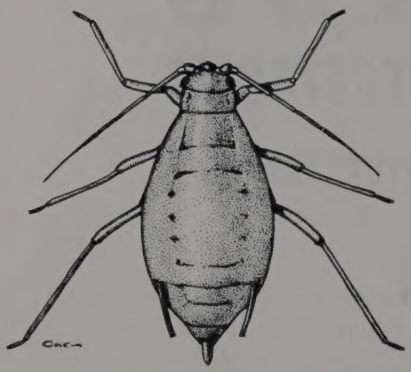
The green peach aphid,[1] known also as the spinach aphid and the tobacco aphid, is about the size of a cabbage seed. Both wingless and winged types are yellowish green or pinkish green; the winged type is darker.

This aphid feeds on many plants. It is most destructive to spinach, beets, celery, lettuce, and chard. It

[1] *Myzus persicae.*

also causes some injury to cabbage and related cole crops, dandelion, endive, mustard greens, parsley, and turnip.

It spreads several virus diseases of plants, including beet mosaic, beet yellows (which also attacks spinach), and lettuce mosaic.



BW–10059

Green peach aphid, wingless form.

In the Southern States, in Arizona and California, and in extreme western Oregon and Washington, nearly all green peach aphids are females that deposit their young without mating. Reproduction takes place throughout the year. As many as 30 generations a year occur in the extreme South.

Continuous reproduction by unmated females, and overwintering of this form of the insect, occur as far north as warmer parts of New Jersey, Maryland, Virginia, Tennessee, Arkansas, and Oklahoma, and in at least one area in Washington.

In these and colder areas, males and egg-laying females also develop in the fall. This aphid survives the winter only in the egg stage in areas where the average annual minimum temperature is 0° F. or below. Eggs are laid mostly on peach, wild plum, and cherry trees. They hatch in the spring, and the young aphids feed where the eggs were laid. New broods develop and spread to vegetables and other host plants.

CABBAGE APHID

The cabbage aphid [2] is found throughout the United States. It is distinguished from other species by a powdery, waxy covering over its body. Color is grayish green.

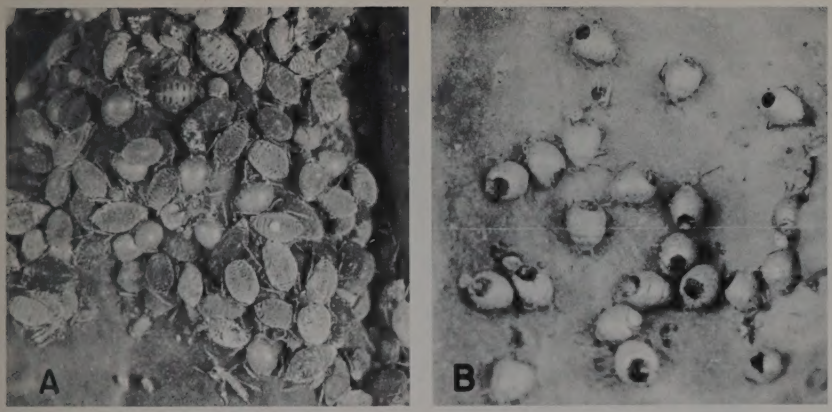
This aphid feeds primarily on cabbage, cauliflower, collards, broccoli, kale, and other cole crops. It seldom damages mustard or turnips.

In the Southern States, 30 or more generations of females, both winged and wingless, are produced throughout the year. In colder climates, males and females occur in the fall; they mate and the females lay eggs that survive the winter. Eggs of this

[2] *Brevicoryne brassicae.*

TC–7319

Cabbage plant injured by cabbage aphids.



TC–7322 TC–7323

Cabbage aphids: *A*, Several near center of picture have been killed by a parasitic insect, have lost their powdery covering, and have become shiny tan; *B*, bodies of aphids after emergence of the parasites through the circular openings.

aphid usually are laid on the residues of host crops that have been left in the field.

TURNIP APHID

The turnip aphid [3] is also called the turnip louse and the false cabbage aphid.

This aphid resembles the cabbage aphid, but does not have a waxy body covering. It is pale green. The winged form has black spots, a black head, and transparent wings marked by black veins.

The turnip aphid is widely distributed in the United States and causes heavy losses to growers, especially in the South. It feeds chiefly on turnip, mustard, and radish plants. It also injures other crucifers, particularly in their seedling stage.

Full-grown females give birth to 50 to 100 young during their reproductive period of 20 to 30 days. In the Gulf Coast region as many as 46 generations have been observed in a year.

The habits of this insect are similar to those of the cabbage aphid, except that egg laying is rare.

OTHER APHIDS

The bean aphid [4] ranges in color from dark olive-green to black. It has been found on beets in Arizona, and on beets and chard in other sections. It is not usually a serious pest of other leafy vegetables.

The bean aphid passes the winter in the North as eggs on species of euonymus, and to a limited extent on snowball and deutzia. Little is known of its life history in the South, but probably successive generations

[3] *Rhopalosiphum pseudobrassicae.*

[4] *Aphis fabae.*

TC–7348

Macrosiphum ambrosiae, an aphid that attacks lettuce and endive plants.

of females are produced there throughout the year. A common weed, dock, is a favored host.

Macrosiphum ambrosiae is the scientific name of a large reddish aphid that damages lettuce in eastern Virginia, coastal South Carolina, and southern Texas. In eastern Virginia it feeds on endive plants.

An aphid known as *Macrosiphum barri* damages lettuce in Arizona, California, and some of the other western States.

The potato aphid,[5] which occurs in both green and pink colors, attacks spinach at times in the fall in Virginia.

NATURAL CONTROLS

Sometimes natural controls hold down the aphid population. Other insects that kill aphids are important natural controls. Fungus diseases and certain weather conditions also help destroy aphids.

[5] *Macrosiphum solanifolii*.

INSECTS THAT KILL APHIDS

Both parasitic and predatory insects help keep aphids in check.

Four-winged, wasplike insects parasitize aphids. The females lay eggs in the bodies of aphids; when the eggs hatch, the larvae feed on the aphids.

The parasites reproduce rapidly under favorable conditions. Usually they become abundant during spring and early summer.

The predatory insects that feed on aphids are lady beetles, soldier bugs, assassin bugs, and the larvae of lady beetles, syrphid flies, and green lacewings. They are most active during summer and fall.

If inspection shows that insect enemies are present, do not apply an insecticide unless the aphids begin to increase. Insecticides also kill the insects that kill aphids. Then, aphids that survive multiply rapidly, and repeated applications of insecticide become necessary.

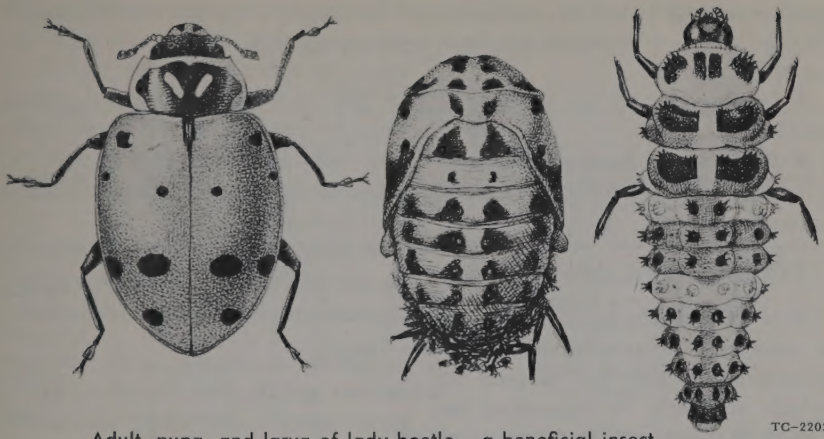
DISEASES

Fungus diseases sometimes kill aphids. However, this seldom happens before the aphids have become numerous and caused considerable damage.

Aphids killed by a fungus change shape and turn tan or light brown. Sometimes the fungus attaches them to the plant.

WEATHER

Aphids are sensitive to weather conditions. Hard, driving rains kill large numbers of some species.



TC-2202

Adult, pupa, and larva of lady beetle—a beneficial insect.

Damp weather favors the development of diseases that kill aphids.

Aphids reproduce most rapidly at moderate temperatures. High temperatures are unfavorable to the kinds of aphids that attack leafy vegetables.

CONTROL MEASURES

You can control aphids by following cultural practices that keep the insects in check, and by applying insecticide.

CULTURAL PRACTICES

These cultural practices insure better crops, and help keep aphids under control:

- Start with a well-prepared, fertile seedbed.
- Do not plant on land from which a similar aphid-infested crop has been recently removed.
- Do not plant near a growing crop of aphid-infested vegetables.
- Clear the field and surrounding area of aphid host plants.
- Plant seed in drills, to facilitate cultivation and application of insecticide.
- Apply a nitrogenous fertilizer (20 to 30 pounds of nitrogen per

BW-10060

Adult and larva of green lacewing.

acre) soon after plants come up. Fertilize plants adequately throughout their growth.

- Irrigate during dry weather, if possible.
- Harvest the crop as soon as it is ready. Dispose of crop residue immediately.

CONTROL WITH INSECTICIDES

You should apply an insecticide as soon as it becomes evident that natural controls are not keeping the aphids in check. If experience has shown that infestations are seldom checked by their insect enemies, start applications before the aphids become abundant.

Selecting insecticides

In selecting an insecticide, choose a material that (1) is approved for use on your particular crop, (2) can be applied at the time needed without leaving a poisonous residue on the crop, and (3) can safely be applied with available equipment.

The accompanying table gives suitable insecticides for each crop, and tells the time that should be allowed between the last application and harvest.

Following are general comments on the effectiveness of the insecticides recommended for use against aphids:

Demeton is usually more effective against aphids than the other insecticides listed in the table. It can be used on broccoli, brussels sprouts, cabbage, cauliflower, and lettuce, but is not approved for use on the other leafy vegetables. It can be used also in transplant water to protect young plants while they are becoming established in field rows. Properly applied, it kills almost all aphids present. It is absorbed by

Adult and larva of lady beetle, feeding on aphids. *(Courtesy of Clemson Agricultural College, South Carolina.)*

Formulations and dosages of insecticides to use for controlling aphids on leafy vegetables

BEETS (TOPS)

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
	Pounds	Percent			Days
Diazinon	0.4 to 0.5	2	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	14
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
Parathion	0.4 to 0.5	2	25% WP	1½ to 2 pounds	21
	0.25 to 0.5	.....	25% EC	1 to 2 pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

BROCCOLI, CABBAGE, CAULIFLOWER

Demeton	0.25 to 0.5	.....	2 pounds per gallon, EC [4]	1 to 2 pints	21
Diazinon	0.4 to 1	2 to 4	.....	.....	5 (broccoli, cauliflower); 7 (cabbage)
	0.4 to 0.5	.....	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	3 (broccoli); 7 (cabbage, cauliflower)
Parathion	0.4 to 0.5	2	25% WP	1½ to 2 pounds	21
	0.25 to 0.5	.....	25% EC	1 to 2 pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP 2 pounds per gallon, EC	2½ to 5 pounds 1 to 2 pints	1 (broccoli, cabbage); 3 (cauliflower)
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

BRUSSELS SPROUTS

Demeton	0.25 to 0.5	.....	2 pounds per gallon, EC [4]	1 to 2 pints	21
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
Parathion	0.4 to 0.5	2	25% WP	1½ to 2 pounds	21
	0.25 to 0.5	.....	25% EC	1 to 2 pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP 2 pounds per gallon, EC	2½ to 5 pounds 1 to 2 pints	3
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

CELERY

Diazinon	0.4 to 0.5	2	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	10
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
Parathion	0.3 to 0.4	1½	.....	.....	15
	0.25 to 0.4	.....	25% WP 25% EC	1 to 1½ pounds 1 to 1½ pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

See footnotes at end of table.

Formulations and dosages of insecticides to use for controlling aphids on leafy vegetables—Continued

CHARD

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
	Pounds	Percent			Days
Diazinon	0.4 to 1	2 to 4	.....	.....	12
	0.4 to 0.5	.....	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
Parathion	0.2 to 0.35	1	25% WP 25% EC	1 pound 1 pint	21
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

COLLARDS, KALE, TURNIP (TOPS)

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
Diazinon	0.4 to 1	2 to 4	.....	.....	10
	0.4 to 0.5	.....	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7 (collards, kale); 3 (turnip: tops)
Parathion	0.3 to 0.4	1½	.....	.....	21
	0.25 to 0.4	.....	25% WP 25% EC	1 to 1½ pounds 1 to 1½ pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP 2 pounds per gallon, EC	2½ to 5 pounds 1 to 2 pints	3
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

DANDELION, PARSLEY, WATER CRESS

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

ENDIVE

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
Diazinon	0.4 to 0.5	2	25% WP 25% EC	1½ to 2 pounds 1½ to 2 pints	10
Malathion	1 to 1.25	5	25% WP 5 pounds per gallon, EC	4 to 5 pounds 1½ to 2 pints	7
Parathion	0.3 to 0.4	1½	.....	.....	21
	0.25 to 0.4	.....	25% WP 25% EC	1 to 1½ pounds 1 to 1½ pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

See footnotes at end of table.

Formulations and dosages of insecticides to use for controlling aphids on leafy vegetables—Continued

LETTUCE

Insecticide	Active ingredient per acre	Dusts: Strength at 20 to 25 pounds per acre	Sprays [1]: Most common formulations [2]	Sprays [1]: Quantity per acre in 20 to 100 gallons of water	Minimum interval between last application and harvest
	Pounds	Percent			Days
Demeton	0.25 to 0.5	.....	2 pounds per gallon, EC [4]	1 to 2 pints	21
Diazinon	0.4 to 0.5	2	25% WP	1½ to 2 pounds	10
			25% EC	1½ to 2 pints	
Malathion	1 to 1.25	5	25% WP	4 to 5 pounds	14 (leaf lettuce); 7 (head lettuce)
			5 pounds per gallon, EC	1½ to 2 pints	
Parathion	0.3 to 0.4	1½	.....	.....	
	0.25 to 0.4	.....	25% WP	1 to 1½ pounds	21
			25% EC	1 to 1½ pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP	2½ to 5 pounds	2
			2 pounds per gallon, EC	1 to 2 pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

MUSTARD GREENS

Malathion	1 to 1.25	5	25% WP	4 to 5 pounds	7
			5 pounds per gallon, EC	1½ to 2 pints	
Parathion	0.4 to 0.5	2	25% WP	1½ to 2 pounds	21
	0.25 to 0.5	.....	25% EC	1 to 2 pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP	2½ to 5 pounds	3
			2 pounds per gallon, EC	1 to 2 pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

SPINACH

Diazinon	0.4 to 0.5	2	25% WP	1½ to 2 pounds	10
			25% EC	1½ to 2 pints	
Malathion	1 to 1.25	5	25% WP	4 to 5 pounds	7
			5 pounds per gallon, EC	1½ to 2 pints	
Parathion	0.3 to 0.4	1½	.....	.....	
	0.25 to 0.4	.....	25% WP	1 to 1½ pounds	21
			25% EC	1 to 1½ pints	
Phosdrin	0.25 to 0.5	1 to 2	10% WP	2½ to 5 pounds	4
			2 pounds per gallon, EC	1 to 2 pints	
TEPP [3]	0.4 to 0.5	2	.....	.....	3
	0.25 to 0.4	.....	20% EC	1 to 1½ pints	

[1] To obtain adequate coverage, you may have to add a wetting or sticking agent. In using such additives, follow directions of the manufacturer.

[2] WP = wettable powder; EC = emulsifiable concentrate. Products on the market contain various percentages of actual insecticide. If you buy a product in which the percentage differs from that called for in this table, mix proportionately more or less of it with water.

[3] TEPP is very unstable in water; the spray should be applied as soon as prepared.

[4] Use maximum dosage of demeton for plant-bed application and in transplant water.

TC-3443

Field of mustard, severely injured by the turnip aphid.

plants, and gives protection longer than other insecticides.

Diazinon is as effective as parathion or malathion against cabbage and turnip aphids. It kills other harmful insects, including the imported cabbageworm and the larva of the diamondback moth.

Malathion can be used on all leafy vegetables. It is considered to be the safest of the insecticides listed. However, it is not as effective as the other insecticides and cannot be depended on to control the cabbage aphid. Its use will intensify smog damage to table beets, spinach, and certain types of leaf lettuce.

Parathion can be used against aphids on commercial plantings of most leafy vegetables. It is also at least moderately effective against most of the caterpillars (including the cabbage looper) and other insect pests of leafy vegetables. Therefore it is especially useful when other insects are present with aphids.

A bad feature of parathion is that it kills many insect enemies of aphids. As a result, aphids multiply rapidly, and frequent applications may be necessary.

Phosdrin is especially useful in controlling aphids, caterpillars (including the cabbage looper), and some other insects on most kinds of leafy vegetables when an application is needed 2 or 3 days before harvest.

It is as effective as parathion—more so in some cases, because it usually gives better control of aphids that are hard to reach on the plants.

TEPP can be used on all leafy vegetables. It is about as effective as parathion against aphids, but less effective against other insects.

Like parathion, TEPP kills many of the insects that kill aphids, and repeat applications may be necessary.

TEPP is unstable in water. It should be applied as soon as prepared, and kept stirred during application.

Applying insecticides

Apply insecticides to the foliage of plants by either spraying or dusting—or add demeton to the transplant water.

Spray or dust during calm, warm weather. Cover plants thoroughly; be sure the insecticide reaches aphids on the undersides of leaves, and inside folded leaves and buds.

Spraying.—Spray with demeton, Diazinon, malathion, parathion, Phosdrin, or TEPP. Each of these is available as an emulsifiable concentrate or wettable powder. Mix with water as directed in the table.

Use 20 to 100 gallons of mixed spray per acre. Maximum amounts of insecticide are needed when plants are large or the infestation is heavy.

Sprays should be used as soon as possible after they are mixed.

Dusting.—Dust with malathion, Diazinon, parathion, Phosdrin, or TEPP. The dusts are ready to use when purchased. TEPP dusts deteriorate rapidly in the presence of moisture. They should be tightly packaged in water-resistant containers.

Apply dusts when plants are moist but not wet. If possible, select a time when humidity is high and there is little wind. These conditions exist most often after sunset and early in the morning. Effective dusting can be done at night,

TC-7058

Insecticides are often needed to protect young plants against aphids, especially the turnip aphid, soon after the first true (crinkled) leaves appear. Plants shown above are at that stage of growth.

USING INSECTICIDE IN TRANSPLANT WATER

Spray or dust infested plants with insecticide before pulling them for transplanting.

Add demeton to the transplant water. Demeton is absorbed by young plants, and protects them while they are becoming established in field rows.

Use an emulsifiable concentrate containing 2 pounds of demeton per gallon. Add 7 fluid ounces of the concentrate to each 100 gallons of water. Use at least ½ cupful of this mixture for each plant.

About 450 gallons of transplant water will be required for each acre when about 14,500 plants are transplanted. This is the number of plants per acre when they are set 1 foot apart in 3-foot rows.

with the aid of hand-held lights or lights mounted on the equipment. Early morning dusting is satisfactory unless the plants are so heavy with dew that the dust runs off the leaves.

If wind velocity exceeds 3 miles an hour, cover nozzles of the duster with a cloth or plastic apron. Allow apron to trail 15 to 25 feet behind the duster.

Use 20 to 25 pounds of dust per acre.

When to apply.—The best time to apply an insecticide varies in different localities. For information about your area, consult your county agricultural agent, State extension entomologist, or State agricultural college.

Generally, you should start looking for aphid infestation in the early stages of plant growth. Examine plants in various parts of the field. If you find only a few aphids, examine plants every few days. If aphids begin to increase rapidly, apply an insecticide before they become abundant.

Time the applications so crops will be free of aphids when ready for harvest. Presence of aphids on a marketed crop, such as spinach, greatly reduces the crop's value.

Do not apply an insecticide too close to harvesttime. If you do, a poisonous residue may remain on edible parts of the crop. Crops having such residues may not be shipped across State lines. The table lists, for each crop and each insecticide, the minimum time that should elapse between application and harvest.

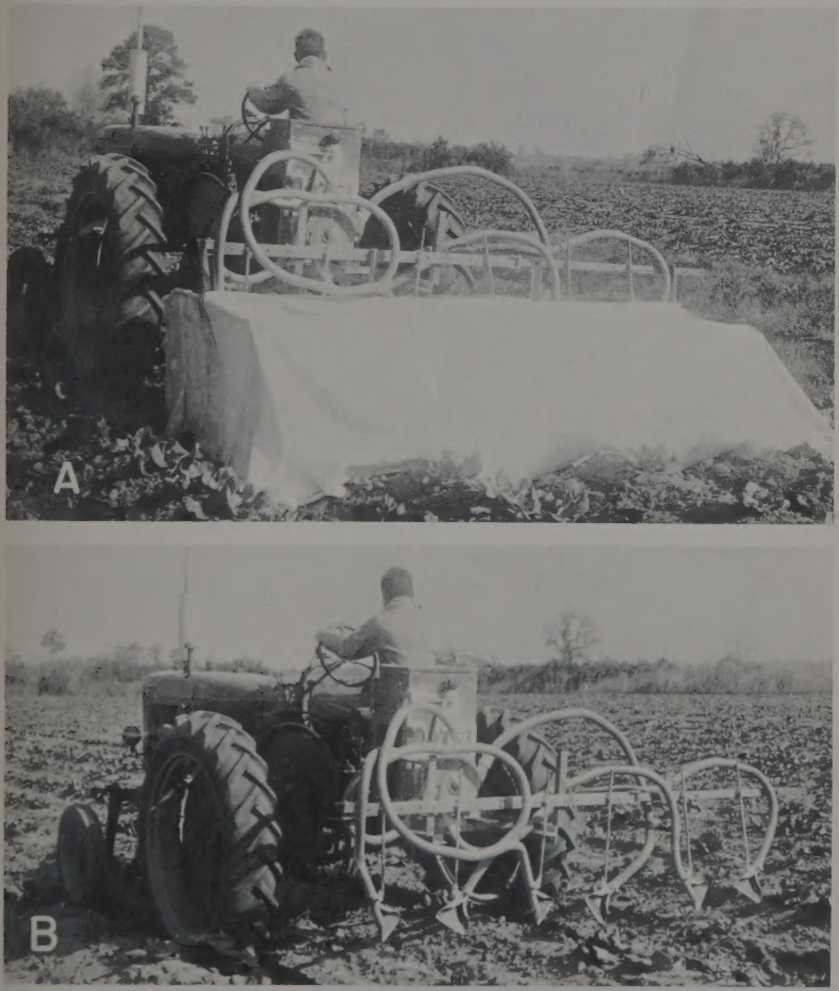
PRECAUTIONS

Insecticides are poisonous; handle them with care. Follow the directions and heed all precautions on container labels. Keep insecticides in closed, well-labeled containers, in a dry place where they will not contaminate food or feed, and where children and pets cannot reach them.

Do not wear insecticide-contaminated clothing. Avoid repeated or prolonged contact of insecticide with the skin. Do not inhale dusts or

mists. Wash hands and face before eating or smoking.

When handling concentrates, avoid spilling them on the skin, and keep them away from the eyes, nose, and mouth. If you spill a concentrate on the skin or clothing, wash it off and change clothing immediately. If you get it in your eyes, flush them with plenty of



TC–7315, TC–7316

Tractor-mounted dust machine suitable for applying an insecticide dust for control of aphids: *A*, With cloth hood over outlet nozzles to reduce drift of dust (addition of a cloth plastic apron that trails 15 to 25 feet behind the hood is usually of further value); *B*, same machine without cloth hood.

water for 15 minutes and get medical attention.

Malathion can be used safely without special protective clothing or devices if it is in diluted dust or water-spray form. However, malathion concentrates require special precautions.

Diazinon can be absorbed directly through the skin in harmful quantities. When working with this insecticide in any form, use extra care.

Demeton, parathion, Phosdrin, and TEPP are extremely poisonous and may be fatal if swallowed, inhaled, or absorbed through the skin. They should be applied only by a person who is thoroughly familiar with their hazards and who will assume full responsibility for safe use and comply with all precautions on the labels. Reduce the danger of skin exposure to these insecticides by wearing recommended protective clothing and equipment. Wear a respirator or mask of a type that has been tested and found to be satisfactory for protection against the particular insecticides you are using.

Wear clean, dry, cotton gloves if you transplant or handle plants within 5 days after treatment with demeton or parathion, or within 1 day after treatment with Phosdrin.

Consult your county agent, extension entomologist, or State agricultural experiment station regarding regulations on the use of insecticides in your State.

GPO : 1960 OF—539453